# CLAIMS

1 (Amended). A method of closed-loop capacity scheduling between a base station and a mobile station, wherein the mobile station comprises the steps of:

inputting respective flows to capacity controllers (FCC) in the mobile station;

selecting a traffic class from a plurality of QoS traffic classes; and

allocating priority levels to the respective flows in consideration of the selected traffic class in order to transmit different QoS traffic classes.

2 (Amended). The method of closed-loop capacity scheduling as claimed in claim 1, further comprising the step of computing, in the FCCs, uplink capacity requests for the respective flows based on the selected traffic class.

3 (Amended). The closed-loop capacity scheduling method as claimed in claim 2, further comprising the steps of:

changing, in a capacity request controller (CRC), the capacity request for each of the flows with the use of the priority level, the selected traffic class, and the uplink transmission power; and

transmitting the changed capacity request for each of the flows from the mobile station to the base station.

4 (Amended). The closed-loop capacity scheduling method as claimed in claim 3, further comprising the steps of:

receiving, in the base station, the changed capacity request;

computing, in a capacity scheduler (CS) of the base station, an allowable capacity for each of the flows with the use of the changed capacity request; and

transmitting capacity allocation indicating the allowable capacity for each of the flows from the base station to the mobile station.

5 (Amended). The closed-loop capacity scheduling method as claimed in claim 3, further comprising the steps of:

receiving, in the base station, the changed capacity request;

computing, in a capacity scheduler (CS) of the base station, an allowable capacity for each of the flows with the use of the changed capacity request;

computing a total value of the allowable capacities for the flows (the total allowable capacity) for each of the mobile stations; and

transmitting capacity allocation indicating the total allowable capacity for each of the mobile station from the base station to the mobile station.

6 (Amended). The closed-loop capacity scheduling method as claimed in claim 4, further comprising the steps of:

receiving, in a capacity allocation controller (CAC) of the mobile station, the capacity allocation;

changing the capacity allocation received by the CAC with the use of the selected traffic class and the uplink transmission power to generate a changed allocated capacity; and

updating, in each of the FCCs, the allowable capacity with the use of the changed allocated capacity.

7 (Amended). The closed-loop capacity scheduling method as claimed in claim 5, further comprising the steps of:

receiving, in a transport format combination controller (TFCC) of the mobile station, the capacity allocations,

selecting, in the TFCC, a combination of transport formats according to the capacity allocations; and

computing, in each of the FCC, a capacity request for each flow according to the selected combination of transport formats.

8 (Amended). A method of closed-loop capacity scheduling between a base station and a mobile station, wherein:

generating, in the mobile station, a capacity request based on a priority allocated to each of the flows and a queue size of a flow queue allocated to each of the flows,

determining, in the base station, a capacity allocation of the flow based on the capacity request,

reporting, in the base station, a flow assigning information and the capacity allocation to the mobile station, and

transmitting, in the mobile station, data packets based on the assigned flow and the capacity allocation.

9 (Amended). A method of closed-loop capacity scheduling as claimed in claim 8 comprising the step of generating, in the mobile station, the capacity request based on the priority assigned to each flow and the queue size of the flow queue allocated to each flow, wherein

calculating, in the base station, a capacity allocation of each of the flows based on a capacity request, and

determining, in the base station, when the total amount of the capacity allocation is equal to or greater than the usable capacity amount, the allowable capacity which is smaller than a capacity allocation based on the priority.

10 (Amended). A method of closed-loop capacity scheduling as claimed in claim 9, wherein the base station determines a capacity allocation to the flow based on the capacity request, the capacity allocation information including the flow ID of the flow and the allowable capacity which can be used for the flow.

11 (Amended). A method of closed-loop capacity scheduling for use in a system capable of transmitting a plurality of data flows from the mobile station to the base station and having any one of the plurality of priority levels allocated to each of the data flows, wherein the method comprises:

(a) a first step where the mobile station reports to the base station of the

provisional scheduling information generated based on the buffer storing amount of the data flow and the priority,

(b) a second step where the base station determines the capacity allocation to the data flow based on the provisional scheduling information,

(c) a third step where the base station reports to the mobile station of the data flow assigning information and the capacity allocation, and

(d) a fourth step where the mobile station transmits the data flow based on the capacity allocation.

12 (Amended). A method of closed-loop capacity scheduling as claimed in claim 11, wherein the second step includes:

a fifth step for calculating a required capacity of each of the data flows based on the provisional scheduling information, and

a sixth step for determining, in case where the total amount of the required capacity is equal to or greater than the usable amount of capacity, the allowable capacity smaller than the required capacity

13 (Amended). A method of closed-loop capacity scheduling as claimed in claim 11, wherein:

the capacity allocation information in the third step includes a flow ID of the data flow and allowable capacity usable for the data flow.

14 (Added). A system for providing closed-loop capacity scheduling between a mobile station and a base station, capable of selecting a QoS traffic class from a plurality of QoS traffic classes, the system comprising:

a flow capacity controller (FCC) for computing a requested uplink capacity for each data flow specified by a selected QoS traffic class;

a capacity request controller (CRC) for changing the requested uplink capacity so as to generate a changed capacity request indicating a changed capacity; and

means for transmitting the changed capacity request from the mobile

station to the base station.

15 (Added). The system as claimed in claim 14, wherein the mobile station further comprises:

a capacity allocation controller (CAC) changing the allocated capacity transmitted from the base station based on an uplink transmission power; and

an FCC for updating the allowed capacity with the use of the changed allocated capacity.

16 (Added). The system as claimed in claim 14, wherein the mobile station further comprises:

a TFCC for selecting a combination of transport formats according to the capacity allocation transmitted from the base station; and

an FCC for computing a capacity request for each of the flows with the use of the selected combination of transport formats.

17 (Added). The system as claimed in claim 14 or 15, wherein the base station comprises:

reception means for receiving the changed capacity request; and

a capacity scheduler for computing an allowable capacity for each of the flows with the use of the changed capacity request, the selected traffic class, and the priority level transmitted from the mobile station.

18 (Added). An uplink capacity managing method of managing uplink capacities for a plurality of uplink data flows in a base station, the base station comprising the steps of:

computing a schedulable uplink capacity indicating a difference between a maximum uplink capacity and a non-schedulable uplink capacity;

receiving a capacity request transmitted from the mobile station;

computing a minimum QoS capacity that satisfies a minimum QoS request; and

allocating a capacity to each of the flows in consideration of the priority

level and the minimum QoS capacity allocated to the flow.

19 (Added). The uplink capacity managing method as claimed in claim 18, further comprising the steps of:

computing an additional requested capacity to each of the flows so that the available and schedulable uplink capacity that remains after the allocation of the minimum QoS capacity is utilized to the maximum extent possible; and

allocating the remaining capacity to each of the flows having the additional requested capacities.

20 (Added). A mobile station device for which an uplink capacity control is carried out by the base station, comprising:

a flow capacity controller (FCC) for computing a requested uplink capacity for each of data flows specified by a selected QoS traffic class,

a capacity request controller (CRC) for changing the requested uplink capacity so as to generate a changed capacity request indicating a changed capacity, and

means for transmitting the changed capacity request from the mobile station to the base station.

21 (Added). A mobile station device as claimed in claim 20 further comprising a capacity allocation controller (CAC) for changing the allocated capacity received from the base station based on an uplink transmission power; and

an FCC for updating the allowed capacity with the use of the changed allocated capacity.

22 (Added). A mobile station device as claimed in claim 21, wherein the device further comprises a TFCC for selecting a transport format combination based on the capacity allocation transmitted from the base station, and

an FCC for computing the capacity request for each of the flows by the use of the combination of the selected transport formats.

23 (Added). A base station device for carrying out an uplink capacity control for a plurality of mobile stations, comprising:

a receiving means for receiving the changed capacity request,

a capacity scheduler for computing an allowable capacity for each of the flows with the use of the changed capacity request, selected traffic classes, and the priority level transmitted from the mobile station.